

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A compound comprising:

- (1) a therapeutic agent capable of entering a target cell,
- (2) an oligopeptide of the formula $(AA)_n-AA^4-AA^3-AA^2-AA^1$,

wherein:

- each AA independently represents an amino acid,
- n is an integer from 0 to 16,
- AA⁴ represents a non-genetically-encoded amino acid,
- AA³ represents any amino acid,
- AA² represents any amino acid, and
- AA¹ represents any amino acid,

- (3) a stabilizing group, and

- (4) optionally, a linker group not cleavable by TOP,

wherein the oligopeptide is directly linked to the stabilizing group at a first attachment site of the oligopeptide and the oligopeptide is directly linked to the therapeutic agent or indirectly linked through the linker group to the therapeutic agent at a second attachment site of the oligopeptide,

wherein the stabilizing group hinders cleavage of the compound by enzymes present in whole blood, and

wherein the compound is cleavable by an enzyme associated with the target cell.

2. (Original) The compound of claim 1 wherein n is an integer from 0 to 8.

3. (Original) The compound of claim 1 wherein the target cell is a tumor or inflammatory cell.

Claim 4 (Cancelled).

5. (Original) A compound comprising:
- (1) a therapeutic agent capable of entering a target cell,
 - (2) an oligopeptide of the formula $(AA)_n-AA^4-AA^3-AA^2-AA^1$,

wherein:

- each AA independently represents an amino acid,
- n is an integer from 0 to 16,
- AA^4 represents a non-genetically-encoded amino acid,
- AA^3 represents any amino acid,
- AA^2 represents any amino acid, and
- AA^1 represents any amino acid,
- (3) a stabilizing group, and
- (4) optionally, a linker group not cleavable by TOP,

wherein the oligopeptide is directly linked to the stabilizing group at a first attachment site of the oligopeptide and the oligopeptide is directly linked to the therapeutic agent or indirectly linked through the linker group to the therapeutic agent at a second attachment site of the oligopeptide,

wherein the stabilizing group hinders cleavage of the compound by enzymes present in whole blood, and

wherein the compound is cleavable by TOP.

6. (Original) The compound of claim 5 wherein TOP is present in the extracellular vicinity of the target cell for the therapeutic agent.

7. (Original) The compound of claim 5 wherein TOP cleaves the linkage between AA^3 and AA^2 of the oligopeptide.

8. (Original) The compound of claim 5 being a prodrug having an active portion, wherein the active portion of the prodrug is more capable of entering the target cell after cleavage by TOP than prior to cleavage by TOP, the active portion including at least the

therapeutic agent.

9. (Original) The compound of claim 8 wherein the active portion of the prodrug consists of the therapeutic agent.

10. (Original) The compound of claim 8 wherein the active portion of the prodrug includes the therapeutic agent and at least the linker group.

11. (Original) The compound of claim 8 wherein the active portion of the prodrug includes the therapeutic agent and AA¹ of the oligopeptide.

12. (Original) The compound of claim 11 wherein the active portion of the prodrug further comprises AA² of the oligopeptide linked to AA¹.

13. (Original) The compound of claim 5 wherein the oligopeptide is selected from the group consisting of: D-AlaThi β Ala β AlaLeuAlaLeu (SEQ ID NO: 1), Thi β Ala β AlaLeuAlaLeu (SEQ ID NO: 2), β Ala β AlaLeuAlaLeu (SEQ ID NO: 3), β AlaAlaAlaIle (SEQ ID NO: 4), β AlaAlaAlaLeu (SEQ ID NO: 5), β AlaPheTyrLeu (SEQ ID NO: 6), β AlaPheThrPhe (SEQ ID NO: 7), β AlaPheGlyIle (SEQ ID NO: 8), β AlaPheGlyLeu (SEQ ID NO: 9), β AlaPhePhePhe (SEQ ID NO: 10), β AlaPhePheIle (SEQ ID NO: 11), β AlaPhePheLeu (SEQ ID NO: 12), β AlaPheAlaIle (SEQ ID NO: 13), β AlaPheAlaLeu (SEQ ID NO: 14), ThiGlyAlaLeu (SEQ ID NO: 15), NalGlyAlaLeu (SEQ ID NO: 16), β AlaLeuTyrLeu (SEQ ID NO: 17), β AlaLeuThiLeu (SEQ ID NO: 18), β AlaLeuThrPhe (SEQ ID NO: 19), β AlaLeuThrIle (SEQ ID NO: 20), β AlaLeuThrLeu (SEQ ID NO: 21), β AlaLeuSerLeu (SEQ ID NO: 22), β AlaLeuPyrLeu (SEQ ID NO: 23), β AlaLeuLeuLeu (SEQ ID NO: 24), β AlaLeuGlyPhe (SEQ ID NO: 25), β AlaLeuGlyIle (SEQ ID NO: 26), ThiLeuGlyLeu (SEQ ID NO: 27), β AlaLeuGlyLeu (SEQ ID NO: 28), AibLeuGlyLeu (SEQ ID NO: 29), β AlaLeuPheIle (SEQ ID NO: 30), β AlaLeuPheLeu (SEQ ID NO: 31), β AlaLeuAibLeu (SEQ ID NO: 32), β AlaLeuAlaAla (SEQ ID NO: 33), β AlaLeuAla β Ala (SEQ ID NO: 34),

β AlaLeuAlaPhe (SEQ ID NO: 35), β AlaLeuAlaGly (SEQ ID NO: 36), β AlaLeuAlaIle (SEQ ID NO: 37), β AlaLeuAlaLeu (SEQ ID NO: 38), TicLeuAlaLeu (SEQ ID NO: 39), ThzLeuAlaLeu (SEQ ID NO: 40), ThiLeuAlaLeu (SEQ ID NO: 41), NalLeuAlaLeu (SEQ ID NO: 42), NAALeuAlaLeu (SEQ ID NO: 43), D-LeuLeuAlaLeu (SEQ ID NO: 44), D-AlaLeuAlaLeu (SEQ ID NO: 45), D-MetLeuAlaLeu (SEQ ID NO: 46), APPLeuAlaLeu (SEQ ID NO: 47), AmbLeuAlaLeu (SEQ ID NO: 48), β AlaLeuAlaNal (SEQ ID NO: 49), β AlaLeuAlaSer (SEQ ID NO: 50), β AlaLeuAlaTyr (SEQ ID NO: 51), β AlaMetTyrPhe (SEQ ID NO: 52), β AlaMetTyrLeu (SEQ ID NO: 53), β AlaMetGlyIle (SEQ ID NO: 54), ThiMetGlyLeu (SEQ ID NO: 55), β AlaMetPhePhe (SEQ ID NO: 56), β AlaMetPheIle (SEQ ID NO: 57), TicMetAlaLeu (SEQ ID NO: 58), NalMetAlaLeu (SEQ ID NO: 59), NAAMetAlaLeu (SEQ ID NO: 60), β AlaMetAlaLeu (SEQ ID NO: 61), APPMetAlaLeu (SEQ ID NO: 62), β AlaNleTyrIle (SEQ ID NO: 63), β AlaNleTyrLeu (SEQ ID NO: 64), β AlaNleThrIle (SEQ ID NO: 65), β AlaNleThrLeu (SEQ ID NO: 66), β AlaNleGlyPhe (SEQ ID NO: 67), β AlaNleGlyIle (SEQ ID NO: 68), β AlaNleGlyLeu (SEQ ID NO: 69), β AlaNlePheIle (SEQ ID NO: 70), β AlaNleAlaIle (SEQ ID NO: 71), β AlaNleAlaLeu (SEQ ID NO: 72), β AlaNleAlaPhe (SEQ ID NO: 73), β AlaNvaAlaLeu (SEQ ID NO: 74), β AlaPheTyrIle (SEQ ID NO: 75), ThiProGlyLeu (SEQ ID NO: 76), ThiProAlaLeu (SEQ ID NO: 77), NalProAlaLeu (SEQ ID NO: 78), β AlaProAlaLeu (SEQ ID NO: 79), β AlaPhe(Cl),AlaLeu (SEQ ID NO: 80), β AlaPhe(NO₂),AlaIle (SEQ ID NO: 81), β AlaPhe(NO₂) AlaLeu (SEQ ID NO: 82), β AlaPhgAlaLeu (SEQ ID NO: 83), β AlaPyrAlaLeu (SEQ ID NO: 84), TicThrGlyLeu (SEQ ID NO: 85), β AlaThiGlyIle (SEQ ID NO: 86), β AlaThiAlaLeu (SEQ ID NO: 87), β AlaTicAlaIle (SEQ ID NO: 88), β AlaTicAlaLeu (SEQ ID NO: 89), β AlaValAlaLeu (SEQ ID NO: 90), β AlaTrpAlaLeu (SEQ ID NO: 91), β AlaTyrTyrPhe (SEQ ID NO: 92), β AlaTyrTyrIle (SEQ ID NO: 93), β AlaTyrTyrLeu (SEQ ID NO: 94), β AlaTyrThrLeu (SEQ ID NO: 95), β AlaTyrPheLeu (SEQ ID NO: 96), β AlaTyrGlyIle (SEQ ID NO: 97), ThiTyrGlyLeu (SEQ ID NO: 98), β AlaTyrGlyLeu (SEQ ID NO: 99), β AlaTyrPheIle (SEQ ID NO: 100), β AlaTyrAlaIle (SEQ ID NO: 101), ThiTyrAlaLeu (SEQ ID NO: 102), and β AlaTyrAlaLeu (SEQ ID NO: 103).

14. (Original) The compound of claim 5 wherein AA¹ of the oligopeptide is selected from the group consisting of Leucine, Phenylalanine, Isoleucine, Alanine, Glycine, Tyrosine, 2-Naphthylalanine, Serine, p-Cl-phenylalanine, p-Nitrophenylalanine, 1-Naphthylalanine, Threonine, Homoserine, Cyclohexylalanine, Thienylalanine, Homophenylalanine, Norleucine, and β -Alanine.

15. (Original) The compound of claim 5 wherein AA² of the oligopeptide is selected from the group consisting of Alanine, Leucine, Tyrosine, Glycine, Serine, 3-Pyridylalanine, 2-Thienylalanine, Norleucine, Homoserine, Homophenylalanine, p-Cl-phenylalanine, p-Nitrophenylalanine, Aminoisobutyric Acid, Threonine, and Phenylalanine.

16. (Original) The compound of claim 5 wherein AA³ of the oligopeptide is selected from the group consisting of Leucine, Tyrosine, Phenylalanine, p-Cl-Phenylalanine, p-Nitrophenylalanine, Valine, Norleucine, Norvaline, Phenylglycine, Tryptophan, Tetrahydroisoquinoline-3-carboxylic acid, 3-Pyridylalanine, Alanine, Glycine, Thienylalanine, Methionine, Valine, and Proline.

17. (Original) The compound of claim 5 wherein AA⁴ is selected from the group consisting of β -Alanine, Thiazolidine-4-carboxylic acid, 2-Thienylalanine, 2-Naphthylalanine, D-Alanine, D-Leucine, D-Methionine, D-Phenylalanine, 3-Amino-3-phenylpropionic acid, γ -Aminobutyric acid, 3-Amino-4,4-diphenylbutyric acid, Tetrahydroisoquinoline-3-carboxylic acid, 4-Aminomethylbenzoic acid, and Aminoisobutyric acid.

18. (Original) The compound of claim 5 wherein the stabilizing group is a dicarboxylic or higher order carboxylic acid.

19. (Original) The compound of claim 5 wherein the stabilizing group is selected from the group consisting of: succinic acid, adipic acid, glutaric acid, phthalic acid, diglycolic acid, fumaric acid, naphthalene dicarboxylic acid, pyroglutamic acid, acetic

acid, 1-naphthylcarboxylic acid, 2-naphthylcarboxylic acid, 1,8-naphthyl dicarboxylic acid, aconitic acid, carboxycinnamic acid, triazole dicarboxylic acid, gluconic acid, 4-carboxyphenyl boronic acid, polyethylene glycolic acid, butane disulfonic acid, and maleic acid.

20. (Original) The compound of claim 5 wherein the stabilizing group is a non-genetically encoded amino acid having four or more carbons.

21. (Original) The compound of claim 5 wherein the stabilizing group is one of aspartic acid linked to the oligopeptide at the β -carboxy group of the aspartic acid or glutamic acid linked to the oligopeptide at the γ -carboxy group of the glutamic acid.

22. (Original) The compound of claim 5 wherein the stabilizing group is negatively charged or neutral.

23. (Original) The compound of claim 5 wherein the stabilizing group is selected to reduce interaction between the compound and endothelial cells that line blood vessels when administered intravenously to the patient.

24. (Original) The compound of claim 5 wherein the therapeutic agent is selected from the group consisting of Alkylating Agents, Antiproliferative agents, Tubulin Binding agents, Vinca Alkaloids, Eneidyne, Podophyllotoxins or Podophyllotoxin derivatives, the Pteridine family of drugs, Taxanes, Anthracyclines, Dolastatins, Topoisomerase inhibitors, and Platinum complex chemotherapeutic agents.

25. (Original) The compound of claim 5 wherein the therapeutic agent is selected from the group consisting of Doxorubicin, Daunorubicin, Vinblastine, Vincristine, Calicheamicin, Etoposide, Etoposide phosphate, CC-1065, Duocarmycin, KW-2189, Methotrexate, Methopterin, Aminopterin, Dichloromethotrexate, Docetaxel, Paclitaxel, Epithiolone, Combretastatin, Combretastatin A4 Phosphate, Dolastatin 10, Dolastatin 11, Dolastatin 15, Topotecan, Camptothecin, Mitomycin C, Porfiromycin, 5-Fluorouracil, 6-

Mercaptopurine, Fludarabine, Tamoxifen, Cytosine arabinoside, Adenosine arabinoside, Colchicine, Cisplatin, Carboplatin, Mitomycin C, Bleomycin, Melphalan, Chloroquine, Cyclosporin A, a derivative of any of the foregoing, and an analog of any of the foregoing.

26. (Original) The compound of claim 5 wherein the oligopeptide is directly linked to the therapeutic agent.

27. (Original) The compound of claim 5 wherein the oligopeptide sequence is indirectly linked to the therapeutic agent at the second attachment site of the oligopeptide via a linker group, the linker group selected from the group consisting of amino caproic acid, a hydrazide group, an ester group, an ether group, and a sulphydryl group.

28. (Original) The compound of claim 5 wherein the compound is selected from the group consisting of Suc- β Ala-Leu-Ala-Leu-Dox, Suc- β Ala-Leu-Ala-Leu-Dnr, and Glutaryl- β Ala-Leu-Ala-Leu-Dox.

29. (Original) The compound of claim 5 wherein the compound is resistant to cleavage by CD10.

30. (Original) A conjugate comprising an oligopeptide of the formula $(AA)_n-AA^4-AA^3-AA^2-AA^1$, wherein: each AA independently represents an amino acid, n is an integer from 0 to 16, AA^4 represents a non-genetically-encoded amino acid, AA^3 represents any amino acid, AA^2 represents any amino acid, and AA^1 represents any amino acid, wherein the oligopeptide is cleavable by TOP.

31. (Original) The conjugate of claim 30 wherein the oligopeptide is linked to a stabilizing group.

32. (Original) The conjugate of claim 30 wherein the oligopeptide is linked to a therapeutic agent.

Claims 33-36 (Cancelled).

37. (Original) A pharmaceutical composition comprising

(1) a compound comprising:

(a) a therapeutic agent capable of entering a target cell,

(b) an oligopeptide of the formula $(AA)_n-AA^4-AA^3-AA^2-AA^1$,

wherein:

each AA independently represents an amino acid,

n is an integer from 0 to 16,

AA^4 represents a non-genetically-encoded amino acid,

AA^3 represents any amino acid,

AA^2 represents any amino acid, and

AA^1 represents any amino acid,

(c) a stabilizing group, and

(d) optionally, a linker group not cleavable by TOP,

wherein the oligopeptide is directly linked to the stabilizing group at a first attachment site of the oligopeptide and the oligopeptide is directly linked to the therapeutic agent or indirectly linked through the linker group to the therapeutic agent at a second attachment site of the oligopeptide,

wherein the stabilizing group hinders cleavage of the compound by enzymes present in whole blood, and

wherein the compound is cleavable by an enzyme associated with the target cell,

and (2) a pharmaceutically acceptable carrier.

38. (Original) The pharmaceutical composition of claim 37 wherein the enzyme associated with the target cell is TOP.

Claims 39-117 (Cancelled).

118. (New) The compound of claim 5 wherein the oligopeptide is β Ala-Leu-Ala-Leu (SEQ ID NO: 38).

119. (New) The compound of claim 28 wherein the compound is Suc- β Ala-Leu-Ala-Leu-Dox.

120. (New) A pharmaceutical composition comprising the compound of claim 119 and a pharmaceutically acceptable carrier.